HSR:MPC
VIII-0

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

Letter
Circular
LC-664
(Supersedes
LC-522)

September 19, 1941

Information Section
National Bureau of Standards
Washington, D.C.

METALLURGY: PUBLICATIONS BY MEMBERS OF THE STAFF OF THE NATIONAL BUREAU OF STANDARDS (1931-1941)

General Information

The publications in this list have appeared in the regular series of publications of the Bureau, in various scientific and technical journals, or in both. Unless specifically stated, papers are not obtainable from the National Bureau of Standards.

Where the price is stated, the publication can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. The prices quoted are for delivery to addresses in the United States and its territories and possessions and in certain foreign countries which extend the franking privilege. In the case of all other countries, one-third the cost of the publication should be added to cover postage. Remittances should be made either by coupons (obtainable from the Superintendent of Documents in sets of 20 for $1.00 and good until used), or by check or money order payable to the "Superintendent of Documents, Government Printing Office" and sent to him with order. Publications marked OP are out of print but may be consulted at leading libraries.

In case an article has been published in the Bureau's own series and also in a scientific or technical journal, the Bureau reference is given first. These articles are usually available in the large technical libraries, or photostat copies may be purchased for a nominal fee from the United Engineering Societies Library, 29 West 39th Street, New York City, The Carnegie Library, Pittsburgh, Pennsylvania, Metals and Alloys, 330 West 42nd Street, New York City, or some other large technical library which carries on photostat service.

Reference numbers are assigned to facilitate use of the indices. RP is used to designate Research Papers; C, Circulars; R, Simplified Practice Recommendations; M, Miscellaneous Publications; LC, Letter Circulars; and BMS, Building and Materials Structures series.

Ref.		Series	Price
1	Advantages of oxide films as bases for aluminum-pigmented surface coatings for aluminum alloys. R. W. Buzzard and W. H. Mutchler. Nat. Advisory Comm. Aeron. Tech. Note 400 (1931).		
2	Correlation of certain soil characteristics with pipe line corrosion. I. A. Denison. BS J. Research, 7, 631 (1931).	RP363	$0.05
3	Machinability and tool life. T. G. Digges. Metals & Alloys 2, 44 (1931).		
4	The influence of chemical composition and heat treatment of steel forgings on machinability with shallow lathe cuts. T. G. Digges. BS J. Research, 6, 977 (1931). Trans. Am. Soc. Mech. Eng. p. MS54-49 (1932).	RP319	.10
5	Thermomagnetic investigation of tempering of quenched 0.75 percent carbon steel. G. A. Ellinger. BS J. Research, 7, 441 (1931).	RP350	.10
6	Endurance testing of steel: comparison of results obtained with rotating beam vs axially loaded specimens. R. D. France. Proc. Am. Soc. Testing Materials 31 (2), 176 (1931).		
7	Oxygen as a factor in submerged corrosion. E. C. Groesbeck and L. J. Waldron. Proc. Am. Soc. Testing Materials 31 (2), 279 (1931).		
8	Aqueous solutions of ethylene glycol, glycerine and sodium silicate as quenching media for steels. T. E. Hamill. BS J. Research, 7, 555 (1931). Metal Progress 20, 53 (1931).	RP357	.15
9	Quenches, intermediate between oil and water. T. E. Hamill. Metal Progress 20, 55 (1931).		
10	The resistance of chromium plated gages to wear. H. K. Herschman. BS J. Research, 6, 295 (1931).	RP276	.10
11	A grain distribution index for sand grading. C. E. Jackson. Trans. Am. Foundrymen's Assn. 39, 506(1931).		
12	The wear of metals. L. Jordan. Mech.Eng. 53, 644(1931).		
13	The tensile properties of alloy steels at elevated temperatures as determined by the "short-time" method. W. Kahlbaum, R. L. Dowdell and W. A. Tucker. BS J. Research, 6, 199 (1931).	RP270	.15
14	Soil corrosion studies, 1930. Rates of corrosion and pitting of bare ferrous specimens. K. H. Logan and V. A. Grodsky. BS J. Research, 7, 1 (1931).	RP329	OP
15	Soil corrosion studies. Non-ferrous metals and alloys, metallic coatings and specially prepared ferrous pipes removed in 1930. K. H. Logan. BS J. Research, 7, 585 (1931).	RP353	OP
16	Stress corrosion of metals. D. J. McAdam, jr. Int. Assn. Testing Materials, Zurich, Switzerland, p. 228 (Sept. 1931).		

Ref.		Series	Price
17	Influence of water composition on stress corrosion. D. J. McAdam, jr. Proc. Am. Soc. Testing Materials 31,(2), 259 (1931).		
18	Surface coatings for aluminum alloys. W. H. Mutchler. Metals & Alloys 2, 324 (1931).		
19	Flow in rail steel. G. W. Quick. Met. Progress, p. 41 (April 1931).		
20	Work on iron, steel and hardware at the Bureau of Standards. H. S. Rawdon. Research into properties of iron and steel. U. S. Daily, Dec. 17. Metallurgical studies to aid steel industry, Dec. 18. Evolving plant processes for making steel, Dec. 19. Cooperative research into making steel, Dec. 21. Certifying iron products for Federal purchase, Dec. 22. Establishing standards for iron and steel, Dec. 23 (1931).		
21	The freezing point of platinum. W. F. Roeser, F. R. Caldwell and H. T. Wensel. BS J. Research, 6, 1119 (1931).	RP326	$0.05
22	How carbon content and heat treatment can affect wear resistance. S. J. Rosenberg. Iron Age 128,1366 (1931).		
23	The resistance to wear of carbon steels. S. J. Rosenberg BS J. Research, 7, 419 (1931). Trans. Am. Soc. Steel Treating 19, 247 (1932).	RP348	.10
24	Wear of metals. S. J. Rosenberg and H. K. Herschman. Metals & Alloys 2, 52 (1931).		
25	Metal spraying apparatus. C. M. Saeger, jr. U. S. Patent 1,792,551 (1931).		.10
26	A practical method for studying the running quality of a metal cast in foundry molds. C. M. Saeger, jr. and A. I. Krynitsky. Trans. & Bul. Am. Foundrymen's Assn. 2, 513 (1931). Met. Ind. (Lond.) 43, 171 (1932).		
27	Use of ethylene pthalate anhydride as a high vacuum cement. T. P. Sager and R. G. Kennedy. Physics 1, No. 6, 352 (1931).		
28	Thermomagnetic analysis and the A_0 transformation in 0.75 percent carbon steel. R. L. Sanford and C. A. Ellinger. Proc. Am. Soc. Testing Materials 31 (2), 83 (1931).		
29	Fatigue testing of wire. S. M. Shelton. Proc. Am. Soc. Testing Materials 31 (2), 204 (1931).		
30	Properties of the rare metals for high temperature service. Symposium on effect of temperature on the properties of metals (book). W. H. Swanger. Published jointly by Am. Soc. Testing Materials - Am. Soc. Mech. Eng. p. 610 (1931).		
31	Special refractories for use at high temperatures. W. H. Swanger and F. R. Caldwell. BS J. Research, 6, 1131 (1931). Met. Ind. (Lond.) 40, 149, 197 (1932).	RP327	OP

Ref.		Series	Price
32	Bismuth alloys. J. G. Thompson. Metals & Alloys 2, 92 (1931). Met. Ind. (Lond.) 39, 7 (1931). Printing Equipment Eng. (Nov. 1931).		
33	The determination of oxygen and nitrogen in iron and steel by the vacuum fusion method. H. C. Vacher and L. Jordan. BS J. Research, 7, 375 (1931).	RP346	$0.10
34	The carbon-oxygen equilibrium in liquid iron. H. C. Vacher and E. H. Hamilton. Trans. Am. Inst. Min. Met. Eng. Iron & Steel Div. p. 124 (1931).		
35	Shop method for determining volume changes in cast iron during casting. E. J. Ash and C. M. Saeger, jr. Trans. Am. Foundrymen's Assn. 40, 188 (1932).		
36	Volume changes of cast irons during casting. E. J. Ash and C. M. Saeger, jr. BS J. Research, 8, 601 (1932).	RP440	.05
37	Effect of casting temperature and additions of iron on bearing bronze (Cu 80, Sn 10, Pb 10). C. E. Eggenschweiler. BS J. Research, 8, 67 (1932). Met. Ind. (Lond.) 40, 471 (1932).	RP401	.10
38	Effect of antimony on the mechanical properties of a bearing bronze (Cu 80, Sn 10, Pb 10). C. E. Eggenschweiler. BS J. Research, 8, 625 (1932).	RP442	.05
39	Factors affecting the physical properties of cast red brass (85 Cu, 5 Zn, 5 Sn, 5 Pb). H. B. Gardner and C. M. Saeger, jr. Proc. Am. Soc. Testing Materials 32 (2), 517 (1932). Met. Ind. (Lond.) 41, 181, 199 (1932). Am. Met. Market 39, 4, 12 (1932).		
40	Mechanical properties of white-metal bearing alloys at different temperatures. H. K. Herschman and J. L. Basil. Proc. Am. Soc. Testing Materials 32 (2), 536 (1932).		
41	Bonding magnesite linings for steel making furnaces without the use of iron oxide. L. Jordan. Metals & Alloys 3, 22 (1932).		
42	Investigating machinery performance and design. L. Jordan. Commercial Standards Monthly 8, 301 (1932).		
43	Structural stability of 18 percent chromium 8 percent nickel stainless steel at elevated temperatures in absence of stress. L. Jordan. Report of Chairman of Subcomm. M, Proc. Am. Soc. Testing Materials 32 (1), 170 (1932).		
44	Metallurgical research at Bureau of Standards contributed to the design and performance of machinery. L. Jordan. U. S. Daily, Feb. 24, 1932.		
45	Tensile properties of cast nickel-chromium-iron alloys and of some alloy steels at elevated temperatures. W. Kahlbaum and L. Jordan. BS J. Research, 9, 327 (1932).	RP474	.05

Ref.		Series	Price
46	Creep at elevated temperatures in chromium-vanadium steels containing tungsten or molybdenum. W. Kahlbaum and L. Jordan. BS J. Research, 9, 441 (1932).	RP481	$0.05
47	Accelerated weathering tests of soldered and of tinned sheet copper. P. R. Kosting. BS J. Research, 8, 365 (1932).	RP422	.10
48	Zinc and its alloys. M. G. Lorentz et al. Cir. BS, (1932).	C 395	.25
49	Influence of stress on corrosion. D. J. McAdam, jr. Trans. Am. Inst. Min. Met. Eng. 99, 282 (1932).		
50	The resistance to impact of rail steels at elevated temperatures. G. W. Quick. BS J. Research, 8, 191 (1932). Am. Inst. Min. Met. Eng. Preprint (1932).	RP409	.05
51	The tensile properties of rail steel at elevated temperatures. G. W. Quick. BS J. Research, 8, 173 (1932). Am. Inst. Min. Met. Eng. Preprint (1932).	RP408	.05
52	Finding practical uses for nonferrous metals. H. S. Rawdon. U. S. Daily, April 19. Spectrochemical tests of nonferrous alloys, April 20. Studies of properties of nonferrous metals, April 21. Determining use values of nonferrous metals, April 22. Utilizing excess output of nonferrous metals, April 23. Standardizing products of nonferrous metals, April 25 (1932).		
53	Cold treating metallic alloys. Effect of cooling in liquid air or dry ice. H. S. Rawdon. Metal Progress 21, 29 (1932).		
54	Quality control of non-ferrous metals. H. S. Rawdon. Commercial Standards Monthly 9, 109 (1932).		
55	Studies of properties of non-ferrous metals. H. S. Rawdon. Commercial Standards Monthly 9, 131 (1932).		
56	A method for determining the volume changes undergone by metals and alloys during casting. C. M. Saeger, jr. and E. J. Ash. BS J. Research, 8, 37 (1932).	RP399	.10
57	Core or mold binder coating or paste. C. M. Saeger, jr. U. S. Patent 1,889,305 (1932).		.10
58	Thermomagnetic phenomena in steel and their application in the study of tempering of quenched 0.75 percent carbon steel. 1. Fundamental considerations; 2, thermomagnetic analysis applied to the study of tempered steel. R. L. Sanford and G. A. Ellinger. Trans. Am. Soc. Steel Treating 20, 267 (1932).		
59	Effect of zinc coatings on the endurance properties of steel. W. H. Swanger and R. D. France. BS J. Research, 9, 9 (1932). Proc. Am. Soc. Testing Materials 32 (2), 430 (1932). Metallurgist, p. 156 (Oct. 1932).	RP454	.05
60	Determination of oxygen, nitrogen and hydrogen in steel. J. G. Thompson. Am. Inst. Min. Met. Eng. Tech. Pub. 466 (1932).		

Ref.		Series	Price
61	Nitrogen content of some standard sample steels. J. G. Thompson and E. H. Hamilton. BS J. Research, 9, 593 (1932).	RP494	$0.05
62	Determination of alumina and silica in steel by the hydrochloric acid residue method. J. G. Thompson and J. S. Acken. BS J. Research, 9, 615 (1932).	RP496	.05
63	Oxygen, hydrogen and nitrogen as constituents in metals. H. C. Vacher. J. Chem. Education 9, 47 (1932).		
64	Some factors affecting the Preece test for zinc coatings. H. H. Walkup and E. C. Groesbeck. Proc. Am.Soc. Testing Materials 32 (2), 453 (1932).		
65	The utility of the spark test as applied to commercial steels. R. W. Buzzard. BS J. Research, 11, 527 (1933).	RP605	.15
66	Thermo electric properties of Pt-Rh alloys. F. R. Caldwell. BS J. Research, 10, 373 (1933).	RP577	OP
67	Effect of lathe cutting conditions on the hardness of carbon and alloy steels. T. G. Digges. BS J. Research, 10, 77 (1933). Abst. Metal Progress 23, 54 (1933). Mech. Eng. 55, (1933), p. 644.	RP516	.05
68	The effect of impurities, sulphur and iron, on the physical properties of cast red brass (Cu 85, Zn 5, Sn 5, Pb 5). H. B. Gardner and C. M. Saeger, jr. Proc. Am. Soc. Testing Materials 33 (2), 448 (1933).		
69	The freezing point of iridium. F. Henning and H.T.Wensel. BS J. Research, 10, 809 (1933).	RP558	.05
70	Tin-free leaded bearing bronzes. H. K. Herschman and J. L. Basil. BS J. Research, 10, 591 (1933). Met. Ind. (London), 43, 219, 243, 325 (1933).	RP551	.05
71	Metal alloys (bearing bronzes). H. K. Herschman and J. L. Basil. U. S. Patent 1,895,261 (1933).		.10
72	White metal bearing alloys; mechanical properties at different temperatures and service tests. H. K. Herschman and J. L. Basil. BS J. Research, 10, 1 (1933).	RP512	.05
73	Thermal expansion of columbium. P. Hidnert and H. S. Krider. BS J. Research, 11, 279 (1933).	RP590	.05
74	Surface tension of molten metals. A. I. Krynitsky. Metals & Alloys 4, No. 6, 79 (1933). The Metallurgist 9, 76 (1933).		
75	Running quality of molten metals, an extended abstract of an article by M. Rene Berger. A. I. Krynitsky. Metals & Alloys 4, No. 6, 176 (1935).		
76	Exposure tests of wire cloth for insect screens. G. W. Quick. Commercial Standards Monthly 9, No. 7, 151 (1933).		
77	Conditions affecting the freezing temperature of silver. W. F. Roeser and A. I. Dahl. BS J. Research, 10, 661 (1933).	RP557	OP

Ref.		Series	Price
78	Reference tables for Pt to Pt-Rh thermocouples. W. F. Roeser and H. T. Wensel. BS J. Research, 10, 275 (1933).	RP530	OP
79	An international comparison of temperature scales between 660 and 1063°C. W. F. Roeser, F. H. Schofield and H. A. Moser. BS J. Research, 11, 1 (1933).	RP573	OP
80	Core or mold binders, coatings or paste. U. S. Patent 1,893,684. Core or mold binders, coatings or paste, U. S. Patent 1,893,685. Processes of and products for attaching portions of molds or cores, U. S. Patent 1,897,149. Processes and products for coating molds and cores, U. S. Patent 1,901,124. Method and means for foundry practice, U. S. Patent 1,914,532. Metal coating method, U. S. Patent 1,940,814. C. M. Saeger, jr. (1933).		$0.10
81	Fatigue tests of galvanized wire under pulsating tensile stress. S. M. Shelton and W. H. Swanger. Proc. Am. Soc. Testing Materials 33 (2), 348 (1933).		
82	Thermal conductivity of irons and steels and some other metals in the temperature range 0 to 600°C. S. M. Shelton and W. H. Swanger. Trans. Am. Soc. Steel Treating 21, 1061 (1933).		
83	Some physical properties of commercial thorium. J. G. Thompson. Metals & Alloys 4, 114 (1933).		
84	Creep and structural stability of nickel-chromium-iron alloys at 1600°F. W. A. Tucker and S. E. Sinclair. BS J. Research, 10, 851 (1933).	RP572	.05
85	The system liquid iron-carbon oxides. H. C. Vacher. BS J. Research, 11, 541 (1933).	RP606	.05
86	Some physical properties of platinum-rhodium alloys. J. S. Acken. BS J. Research, 12, 249 (1934).	RP650	.05
87	Protective value of nickel and chromium plating on steel. W. Blum, P. W. C. Strausser and A. Brenner. BS J. Research, 13, 331 (1934).	RP712	.10
88	Determination of small amounts of zinc in steels and irons. H. A. Bright. BS J. Research, 12, 583 (1934).	RP664	.05
89	Methods of and baths for anodic treatment of aluminum. R. W. Buzzard. U. S. Patent 1,977,622 (1934).		.10
90	Corrosiveness of certain Ohio soils. I. A. Denison and S. Ewing. Soil Science 40, 287 (1934).		
91	Corrosion of ferrous metals in acid soils. I.A.Denison and R. B. Hobbs. J. Research NBS, 13, 125 (1934).	RP696	OP
92	Cautions regarding gas-appliance attachments. J. H. Eiseman. Cir. BS, C404 (1934).	C 404	.05
93	Prolonged tempering at 100°C and aging at room temperature of 0.8 percent carbon steel. G. A. Ellinger and R. L. Sanford. J. Research NBS, 13, 259 (1934). Trans. Am. Soc. Metals 23, No. 2, 495 (1935).	RP707	.05

Ref.		Series	Price
94	Preece test (copper-sulphate dip) for zinc coatings. E. C. Groesbeck and H. H. Walkup. J. Research NBS, 12, 785 (1934). Met. Ind. (Lond.) 45, 393, 440(1934).	RP688	OP
95	Thermal expansion of bearing bronzes. P. Hidnert. J. Research NBS, 12, 691 (1934).	RP665	$0.05
96	Thermal expansion of artificial graphite and carbon. P. Hidnert. J. Research NBS, 13, 37 (1934).	RP693	.05
97	Preparation of pure gallium. J. I. Hoffman. J. Research NBS, 13, 665 (1934). Met. Ind. (London) 46, 335, 391 (1934).	RP734	.05
98	Graduation and calibration of precision-circles. L. V. Judson. Trans. Am. Geophys. Union (Nat. Res. Council) 15th Annual Meeting (1934).		
99	Dimensional changes in die casting alloys. R.G.Kennedy. Metals & Alloys 5, 106, 124 (1934).		
100	Effect of melting conditions on the running quality of aluminum cast in sand molds. A. I. Krynitsky and C.M. Saeger, jr. J. Research NBS, 13, 579 (1934). Met.Ind. (Lond.) 46, 119, 128 (1934). Resume, The Foundry, p. 21, 60 (March 1935).	RP727	.05
101	Use of Bureau of Standards data in the design and protection of pipe lines. K. H. Logan. Nat. Petroleum News 26, 28 (July 27, 1934).		
102	Rates of loss of weight and pitting of ferrous and non-ferrous specimens and metallic protective coatings. K. H. Logan and R. H. Taylor. J. Research NBS, 12, 119 (1934).	RP658	.05
103	Influence of chemically and mechanically formed notches on the fatigue of metals. D. J. McAdam, jr. and R. W. Clyne. J. Research NBS, 13, 527 (1934).	RP725	OP
104	An abstract of above paper, June meeting of 4th Inst. Congress for Applied Mechanics (England). D. J. McAdam, jr. and R. W. Clyne (1934).		
105	Second spectrum of hafnium. W. F. Meggers and B. F. Scribner. J. Research NBS, 13, 625 (1934).	RP732	.05
106	Ferrous metallurgical developments during past five years. H. S. Rawdon. Metals & Alloys 5, 207 (1934).		
107	Reports of Joint Committee on Investigation of Effect of P and S in Steel:- Effect of S in forging steel. H. S. Rawdon. Proc. Am. Soc. Testing Materials 34 (I), 97 (1934). Effect of added P on low-carbon steel. Proc. Am. Soc. Testing Materials 34 (II), 117 (1934).		
108	Freezing point of gallium. W. F. Roeser and J. I. Hoffman. J. Research NBS, 13, 673 (1934).	RP735	.05
109	Freezing point of rhodium. W. F. Roeser and H. T. Wensel J. Research NBS, 12, 519 (1934).	RP676	.05
110	Silver may answer your corrosion problems. B. A. Rogers. Chem. Met. Eng. 41, 631 (1934).		

Ref.		Series	Price
111	Influence of oxide films on the wear of steels. S. J. Rosenberg and L. Jordan. J. Research NBS, 13, 267 (1934). Trans. Am. Soc. Metals 23, 577 (1935).	RP708	$0.05
112	Speculum metal castings. C. M. Saeger, jr. Metal Progress 25, 534 (1934).		
113	Studies on cast red brass for establishment of a basic classification of nonferrous ingot metals for specification purposes. C. M. Saeger, jr. Am. Foundrymen's Assn. exchange paper. The Foundry 62, 20, 49 (June 1934), 18, 20, 49 (July 1934). Met. Ind. (Lond.) 44, 607, 631 (discussion) 45, 15 (1934). Foundry Trade J. 50, 359, 379, 395 (discussion) 50, 414; 51, 516 (1934). Trans. Am. Foundrymen's Assn. V (No. 3), 67 (1934). J. Inst. Brit. Foundrymen 27, 268, 317 (1934).		
114	Properties of gray cast iron as affected by casting conditions. C. M. Saeger, jr. and E. J. Ash. J. Research NBS, 13, 573 (1934). Trans. Am. Foundrymen's Assn. V, 449 (1934).	RP726	.05
115	Compression tests of structural steel at elevated temperatures. P. D. Sale. J. Research NBS, 13, 713 (1934).	RP741	OP
116	Silver equipment in chemical plants. I. C. Schoonover. Chem. Met. Engr. 41, 545 (1934).		
117	Thermal conductivity of some irons and steels over the temperature range 100 to 500°C. S. M. Shelton. J. Research NBS, 12, 441 (1934).	RP669	.05
118	Accelerated tests of nickel and chromium plating on steel. P. W. C. Strausser, A. Brenner and W. Blum. J. Research NBS, 13, 519 (1934).	RP724	.05
119	Wear of dies for extruding plastic clay. R. F. Stull. J. Research NBS, 12, 501 (1934).	RP675	.05
120	Note on the frictional resistance of steel and of brass in shrink fits. W. H. Swanger. Proc. Am. Soc. Testing Materials 34 (II), 165 (with disc.) (1934). "Measures slip resistance in shrink fits". Steel (July 30, 1934).		
121	Effect of gas content on commercial steel (news story). J. G. Thompson. Steel 94, No. 20, 49 (May 14, 1934).		
122	Effect of cold rolling on the indentation hardness of copper. J. G. Thompson. J. Research NBS, 13, 515(1934).	RP742	.05
123	Methods for determining oxygen in steel - a progress report. J. G. Thompson. Min. & Met. 15, 215 (1934).		
124	Test of a flat steel plate floor under load. L. B. Tuckerman, A. H. Stang and W. R. Osgood. J. Research, NBS, 12, 363 (1934).	RP662	OP
125	Apparatus for determining the thermal conductivity of metals at elevated temperatures. M. S. VanDusen and S. M. Shelton. J. Research NBS, 12, 429 (1934).	RP668	.05

Ref.		Series	Price
126	Observations on the effect of surface finish on the initial corrosion of steel under water. L. J. Waldron and E. C. Groesbeck. Proc. Am. Soc. Testing Materials 34 (II), 123 (with discussion) (1934).		
127	Establishment of a scale of color temperature. H. T. Wensel, D. B. Judd and W. F. Roeser. J. Research NBS, 13, 527 (1934).	RP677	$0.05
128	The metal - iron. H. E. Cleaves and J. G. Thompson. McGraw-Hill Book Co., New York City (published in monograph series of Iron Alloys Comm. of Eng. Foundation) (1935).		6.00
129	Hardening characteristics and other properties of commercial one-percent carbon tool steels. T. G. Digges and L. Jordan. J. Research NBS, 15, 385 (1935).	RP837	.05
130	Hardening characteristics of one percent carbon tool steels. T. G. Digges and L. Jordan. Trans. Am. Soc. Metals 23, No. 4, 839 (1935).		
131	Cathodic protection of pipe lines from soil corrosion. S. Ewing. Natural Gas 16 (No. 3 and 4) 6, 16 (March, April 1935).		
132	Suggestions for making and using a pipe line corrosion survey. S. Ewing. Western Gas XI (No. 714), (July 1935).		
133	Observations on soil corrosion in the gas industry. S. Ewing. Am. Gas Assn. Monthly 17-18, 469 (Dec.1935).		
134	A procedure for the separation of the six platinum metals from one another and for their gravimetric determination. R. Gilchrist and E. Wichers. J. Am. Chem. Soc. 57, 2565 (1935).		
135	Thermal expansion of monocrystalline and polycrystalline antimony. P. Hidnert. J. Research NBS, 14, 5[illegible] (1935).	RP784	.05
136	Purification of gallium by fractional crystallization of the metal. J. I. Hoffman and B. F. Scribner. J. Research NBS, 15, 205 (1935).	RP825	.05
137	Dropping tests for determining the local thickness of zinc and cadmium coatings. R. O. Hull and P. W. C. Strausser. Am. Electroplaters Soc. Monthly Rev. 22 (Mar. 1935).		
138	Use of the pipette method in the fineness test of molding sand. C. E. Jackson and C. M. Saeger, jr. J. Research NBS, 14, 5[illegible] (1935). Foundry Tr. J. 52, 40[illegible] (1935).	RP757	.05
139	International standardization of base-line tapes and wires. L. V. Judson. Trans. Am. Geophys. Union (Nat. Res. Council) 16th Annual Meeting (1935).		
140	Mechanism of chromium deposition from the chromic acid bath. C. Kasper. J. Research NBS, 14, 6[illegible] (1935).	RP797	OP
141	Infra red arc spectrum of chromium. C. C. Kiess. J. Research NBS, 15, 7[illegible] (1935).	RP812	.05

Ref.		Series	Price
142	Use of 8-hydroxyquinoline in determinations of aluminum, beryllium and magnesium. H. E. Knowles. J. Research, NBS, 15, 87 (1935).	RP813	$0.05
143	Development of specifications for protective coatings. K. H. Logan. J. Ind. & Eng. Chem. 27, 1354 (1935).		
144	Underground corrosion. K. H. Logan. Proc. Am. Soc. Chem. Eng. 61, 317 (1935).		
145	Atomic weight of gallium. G. E. F. Lundell and J. I. Hoffman. J. Research NBS, 15, 409 (1935).	RP839	.05
146	The weathering of aluminum alloy sheet materials used in aircraft. R. H. Mutchler. Nat. Advisory Comm. Aeron. Tech. Report 490 (1935).		.15
147	Atmospheric exposure tests of nonferrous screen wire cloth. G. W. Quick. J. Research NBS, 14, 775 (1935). Appendix to Report of Comm. D-14, Proc. Am. Soc. Testing Materials 35 (I), 458 (1935).	RP803	.10
148	Continuous-flow corrosion tests of steel pipe. H. S. Rawdon and L. J. Waldron. Proc. Am. Soc. Testing Materials 35 (II), 233 (with discussion) (1935). Eng. 140, 203 (Aug. 23, 1935).		
149	Standard tables for chromel alumel thermocouples. W. F. Roeser, A. I. Dahl and G. J. Gowens. J. Research NBS, 14, 239 (1935).	RP767	.05
150	Methods of testing thermocouples and thermocouple materials. W. F. Roeser and H. T. Wensel. J. Research NBS, 14, 247 (1935).	RP768	.10
151	Sheet silver for chemical equipment. B. A. Rogers. Sheet Metal Ind. (London) 9, 99 (Feb. 1935).		
152	Determination of gallium in aluminum. J. A. Scherrer. J. Research NBS, 15, 585 (1935).	RP858	.05
153	Colorimetric method for quantitative determination of small amounts of silver using p-Dimethylaminobenzalrhodamine. I. C. Schoonover. J. Research NBS, 15, 377 (1935).	RP836	.05
154	Pipe line fabrics. G. N. Scott and S. Ewing. Oil & Gas J. 34-23, 112 (Oct. 24, 1935).		
155	Fatigue properties of steel wire. S. M. Shelton and W. H. Swanger. J. Research NBS, 14, 17 (1935).	RP754	.05
156	Accelerated service tests of pintle bearings. A.H.Stang and L. R. Sweetman. J. Research NBS, 15, 591 (1935).	RP854	.05
157	Tests of steel tower columns for the George Washington Bridge. A. H. Stang and H. L. Whittemore. J.Research NBS, 15, 317 (1935).	RP831	.10
158	Gold-cobalt resistance alloys. J. L. Thomas. J. Research NBS, 14, 589 (1935).	RP789	.05
159	Second progress report on determination of oxygen in steel to the Iron and Steel Division of Am. Inst. Min. Met. Eng. J. G. Thompson. Min. & Met. 16, 184 (1935).		

Ref.		Series	Price
160	Impact and static tensile properties of bolts. H. L. Whittemore, G. W. Nusbaum and E.O.Seaquist. J. Research NBS, 14, 139 (1935).	RP763	$0.10
161	Mesle's chord method for measuring the thickness of metal coatings. W. Blum and A. Brenner. J. Research NBS, 16, 171 (1936).	RP866	.05
162	Corrosive protective value of electrodeposited zinc and cadmium coating on steel. W. Blum, P. W. C. Strausser and A. Brenner. J.Research NBS, 16, 185 (1936).	RP867	.05
163	Mechanical properties of aluminum alloy rivets. W. C. Brueggeman. Nat. Advisory Comm. Aeron. Tech. Note 585 (1936).		
164	Oxalic acid as an electrolytic etching reagent for stainless steels. G. A. Ellinger. Trans. Am. Soc. Metals 24, 26 (1936).		
165	Inspection and tensile tests of some worn wire ropes. W. H. Fulweiler, A. H. Stang and L. R. Sweetman. J. Research NBS, 17, 401 (1936).	RP920	OP
166	The platinum metals (review of literature 1933-35). R. Gilchrist. Annual Survey of American Chemistry 10 (published by Nat. Research Council) (1936).		
167	Thermal expansion of copper-beryllium alloys. P. Hidnert. J. Research NBS. 16, 529 (1936). Met. Ind. (Lond.) 49, 212 (1936).	RP890	.05
168	Thermal expansion of lead-antimony alloys. P.Hidnert. J. Research NBS, 17, 697 (1936).	RP938	.10
169	Production, heat treatment, and properties of iron alloys. L. Jordan. Cir. NBS (1936).	C 409	.15
170	Discussion of "Austenitic grain-size in cast iron" by D. W. Murphy and W. P. Wood. A. I. Krynitsky. Trans. Am. Soc. Metals 24, 89 (1936).		
171	An improved method for preparing cast iron transverse test bars. A. I. Krynitsky and C. M. Saeger, jr. J. Research NBS, 16, 367 (1936). Fdy. Tr. J. (Lond.) 55, 485 (1936). Trans. Am. Foundrymen's Assn. 45, 753 (1937).	RP880	.05
172	The use of nonferrous metals underground. K. H. Logan. Oil & Gas J. (Tulsa, Okla.) 35, No. 9, 137 (Sept. 24, 1936).		
173	Underground corrosion. K. H. Logan. Trans. Am. Soc. Civil Eng. 101, 811 (1936).		
174	Soil-corrosion studies, 1934. Rates of loss of weight and penetration of nonferrous metals. K. H. Logan. J. Research NBS, 17, 781 (1936).	RP945	OP
175	Soil-corrosion studies, 1934. Rate of loss of weight and pitting of ferrous specimens. K. H. Logan. J. Research NBS, 16, 431 (1936).	RP883	OP

Ref.		Series	Price
176	Arc and spark spectra of columbium. W. F. Meggers and A. S. King. J. Research NBS, 16, 385 (1936).	RP881	$0.05
177	Term analysis of the first spectrum of vanadium (VI). W. F. Meggers and N. N. Russell. J. Research NBS, 17, 125 (1936).	RP909	.05
178	Determination of the Brinell number of metals. S. N. Petrenko, W. Ramberg and B. Wilson. J. Research NBS, 17, 59 (1936).	RP903	.05
179	Final report on effect of sulfur in steel. Joint Committee on Investigation of Effect of Phosphorus and Sulphur in Steel. H. S. Rawdon. Proc. Am. Soc. Testing Materials 36 (I), 88 (1936).		
180	Silver: its properties and industrial uses. D. A. Rogers, I. C. Schoonover and L. Jordan. Cir. NBS (1936).	C 412	.10
181	An alternating current magnetic comparator and the testing of tool-resisting prison bars. R. L. Sanford. J. Research NBS, 16, 563 (1936).	RP894	.05
182	Distillation and separation of arsenic, antimony and tin. J. A. Scherrer. J. Research NBS, 16, 253 (1936).	RP871	.05
183	Some tests of steel columns incased in concrete. A. H. Stang, H. L. Whittemore and D. E. Parsons. J. Research NBS, 16, 265 (1936).	RP873	.10
184	Tests of eight large H-shaped columns fabricated from carbon-manganese steel. A. H. Stang, H. L. Whittemore and L. R. Sweetman. J. Research NBS, 16, 595 (1936).	RP896	.05
185	Tests of steel chord members for the Bayonne bridge. A. H. Stang, H. L. Whittemore and L. R. Sweetman. J. Research NBS, 16, 627 (1936).	RP897	.05
186	Failure of heat-treated steel wire in cables of the Mt. Hope R. I. suspension bridge. W. H. Swanger and G. F. Wohlgemuth. Proc. Am. Soc. Testing Materials 36 (II), 21 (1936). Abst. and disc., Metal Progress 30, 67 (Aug. 1936).		
187	Electrical resistance alloys of copper, manganese and aluminum. J. L. Thomas. J. Research NBS, 16, 149 (1936).	RP863	.05
188	Large single crystals of copper (simplified method for their preparation). J. G. Thompson. Metals & Alloys 7, 19 (1936).		
189	Discussion of "A dilatometric study of the alpha-gamma transformation in high purity iron" by C. Wells, R. A. Ackley and R. F. Mehl. J. G. Thompson and H. A. Bright. Trans. Am. Soc. Metals 24, 67 (1936).		
190	A summary of information on the preparation and properties of pure iron. J. G. Thompson and H. E. Cleaves. J. Research NBS, 16, 105 (1936).	RP860	.05

Ref.		Series	Price
191	Cooperative study of methods for the determination of oxygen in steel. J. G. Thompson, H. C. Vacher and H. A. Bright. Metals Technology (Dec. 1936). J. Research NBS, 18, 259 (1937). Trans. Am. Inst. Min. Met. Eng. Iron & Steel Div. 125, 246 (1937).	RP976	$0.10
192	Discussion of "Equilibrium in the reaction hydrogen and iron oxide in liquid iron at 1600°C" by M. G. Fontana and J. Chipman. H. C. Vacher. Trans. Am.Soc. Metals 24, 333 (1936).		
193	Visitors' manual of the National Bureau of Standards. H. G. Boutell. Misc. Pub. NBS (1937).	M 160	
194	Magnetic methods for measuring the thickness of nickel coatings on nonmagnetic base metals. A. Brenner. J. Research NBS, 18, 565 (1937).	RP994	.10
195	Strength of welded aircraft joints. W. C. Brueggeman. Nat. Advisory Comm. Aeron. Tech. Report 584 (1937).		.15
196	Anodic treatment of aluminum. R. W. Buzzard. U. S. Patent 2,085,002 (1937).		.10
197	Anodizing of aluminum alloys in chromic acid solutions of different concentrations. R. W. Buzzard. J. Research NBS, 18, 251 (1937).	RP975	.05
198	Baths for anodic treatment of aluminum. R. W. Buzzard U. S. Patent 2,066,327 (1937).		.10
199	Anodic coating of magnesium alloys. R. W. Buzzard and J. H. Wilson. J. Research NBS, 18, 83 (1937). Metallurgia (England) 15, 181 (1937).	RP964	.05
200	Deterioration of chromic acid baths used for anodic oxidation of aluminum alloys. R. W. Buzzard and J. H. Wilson. J. Research NBS, 18, 53 (1937).	RP961	.05
201	Preparation of iron oxide as a source of high-purity iron. H. E. Cleaves and J. G. Thompson. J. Research NBS, 18, 595 (1937).	RP996	.05
202	Progress in light alloys. A. J. Dornblatt. Metal Progress 32, 575 (1937).		
203	Laboratory corrosion tests of welded low-carbon stainless steel. G. A. Ellinger and L. C. Bibber. J. Research NBS, 18, 69 (1937).	RP963	.05
204	Pipe corrosion. S. Ewing. Gas Age 80, No. 10, 25 (1937).		
205	Micrographs of high-purity iron-carbon alloys. H. K. Herschman. Metal Progress 32, 781 (1937).		
206	Thermal expansion of cemented tungsten carbide. P. Hidnert. J. Research NBS, 18, 47 (1937). Sci. Abst. (A), Inst. Elec. Eng. (Lond.) 40, 175 (1937).	RP960	.05
207	Redetermination of the atomic weight of aluminum. J. I. Hoffman and G. E. F. Lundell. J. Research NBS, 18, 1 (1937).	RP957	.05
208	Rapid electrodeposition of iron from ferrous chloride baths. C. Kasper. J. Research NBS, 18, 535 (1937).	RP991	.05

Ref.		Series	Price
209	Diffusion in solid metals - A correlated abstract. Parts I, II and III. A. I. Krynitsky. Metals & Alloys 8, 138; 8, 173; 8, 261 (1937).		
210	Soil-corrosion studies, 1934. Bituminous coatings for underground service. K. H. Logan. J. Research NBS, 19, 695 (1937).	RP1058	$0.10
211	Soil-corrosion studies, 1934. Field tests of nonbituminous coatings for underground use. K. H. Logan and S. P. Ewing. J. Research NBS, 18, 361 (1937).	RP982	.10
212	Soil corrosion testing. K. H. Logan, S. P. Ewing and I. A. Denison. Symposium on Corrosion Testing Procedure, Am. Soc. Testing Materials. Page 99 (1937).		
213	A contribution to the chemistry of rhenium. G. E. F. Lundell and H. B. Knowles. J. Research NBS, 18, 629 (1937).	RP999	.05
214	Journal-bearing design as related to maximum loads, speeds, and operating temperatures. S. A. McKee. J. Research NBS, 19, 457 (1937).	RP1037	.05
215	Service test results of titanium-treated and silicon-treated steel rails. G. W. Quick. J. Research NBS, 19, 531 (1937).	RP1042	.05
216	Atmospheric corrosion testing. H. S. Rawdon. Paper published as part of book entitled Symposium on Corrosion Testing Procedures. Am.Soc.Testing Materials (1937).		
217	Discussion of "Some factors affecting the plastic deformation of sheet and strip steel and their relation to the deep-drawing properties" by J. Winlock and R. W.E. Leiter. H. S. Rawdon. Trans. Am. Soc. Metals 25, 187 (1937).		
218	Discussion of "Fine-grained structural steels for low-temperature pressure-vessel service" by A. B. Kinzel, W. Crafts and J. J. Egan. S. J. Rosenberg. Trans. Am. Inst. Min. Met. Eng. 125, 589 (1937).		
219	Oxide films as a protection against wear. S.J.Rosenberg. Int. Assn. Testing Materials (London Congress), Group A (Sub-group 4), page 160 (1937).		
220	Torsion tests of tubes. A. H. Stang, W. Ramberg, G.Back. Nat. Advisory Comm. Aeron. Tech. Report 601 (1937).		.10
221	Discussion of "A new tool for the control of quality steel making" by G. T. Motok. J. G. Thompson and H. C. Vacher. Trans. Am. Soc. Metals 25, 481 (1937).		
222	Discussion of "Effect of temperature upon interaction of gases with liquid steel" by J. Chipman and A.M.Samarin. H. C. Vacher. Trans. Am. Inst. Min. Met. Eng., Iron & Steel Div. 125, 345 (1937).		
223	Square soldier wire for small jobs. C. E. Waters. The Modelmaker, Wauwatosa, Wisc. 15, 46 (Dec. 1937-Jan. 1938); Rev. Sci. Instr. (Cornell University) 9, 139 (1938).		

Ref.		Series	Price
224	Magnetic method for measuring the thickness of non-magnetic coatings on iron and steel. A. Brenner. J. Research NBS, 20, 357 (1938).	RP1081	$0.05
225	Bath for and method of coating magnesium and its alloys. R. W. Buzzard. U. S. Patent 2,114,734 (1938).		.10
226	Methods of treating anodic coatings on magnesium and aluminum alloys. R. W. Buzzard and J. H. Wilson. U. S. Patent 2,138,023 (1938).		.10
227	Discussion of "Some factors influencing austenitic grain size in high purity steels", by Derge, Kommell and Mehl. T. G. Digges. Trans. Am. Soc. Metals 26, 167 (1938).		
228	Effect of carbon on the critical cooling rate of high-purity iron-carbon alloys and plain carbon steels. T. G. Digges. J. Research NBS, 20, 571 (1938), Abst. Bul. Am. Phys. Soc. 13, 18 (April 19, 1938); The Metallurgist, p. 145, August 26, 1938; Phys. Rev. 53, Ser. 2, 925 (1938).	RP1092	.10
229	Effect of carbon on the hardenability of high-purity iron-carbon alloys. T. G. Digges. Am. Soc. Metals Trans. 26, 408 (1938).		
230	The development of new uses for silver. A. J. Dornblatt. Mining Congress J. 24, No. 10, 31 (1938).		
231	Silver for plant use. A. J. Dornblatt. Chem. Met. Eng. 45, 601, 608 (1938).		
232	Silver, fine, sterling, and coin:-- data sheet. A. J. Dornblatt. Chem. Met. Eng., p. 637 (Nov. 1938).		
233	Soil corrosion and pipe line protection (book). Scott Ewing. Am. Gas Assn., 420 Lexington Ave., N.Y. (1938).		2.50
234	High-purity iron-carbon alloys - a special reference plate. H. K. Herschman. Metal Progress 34, 639 (1938).		
235	Thermal expansion and effects of heat treatments on the growth, density, and structure of some heat-resisting alloys. P. Hidnert. J. Research NBS, 20, 809 (1938); Phys. Rev. 53, 925 (1938).	RP1106	.10
236	Discussion of "The rate of austenitic transformation in cast iron" by Murphy, Wood and Girardi. A. I. Krynitsky. Trans. Am. Soc. Metals 26, 188 (1938).		
237	Underground corrosion of pipe. K. H. Logan. Chem. Met. Eng. 45, 422 (1938).		
238	The corrosion and protection of pipe lines in the United States of America. K. H. Logan. from "The Science of Petroleum", Oxford Press, Oxford, England, p. 747 (1938).		
239	The theory of impact testing: Influence of temperature, velocity of deformation, and form and size of specimen on work of deformation. D. J. McAdam, jr. and R. W. Clyne. Part of Symposium on Impact Testing, Am. Soc. Testing Materials (1938).		

Ref.		Series	Price
240	A note on rapid photomicrography. W. H. Mutchler and H. O. Willier. Trans. Am.Soc.Metals 26, 279 (1938).		
241	The crinkling strength and the bending strength of round aircraft tubing. W. R. Osgood. Nat. Advisory Comm. Aeron. Tech. Report 632 (1938).		$0.10
242	Method of investigation of surface treatment for corrosion protection of steel. R. E. Pollard and W. C. Porter (1938).	BMS8	.10
243	Reference tables for iron-constantan and copper-constantan thermocouples. W. F. Roeser and A. I. Dahl. J. Research NBS, 20, 337 (1938).	RP1080	.05
244	Survey of roofing materials in the southeastern states. H. R. Snoke and L. J. Waldron (1938).	BMS6	.15
245	Strength of a riveted steel rigid frame having straight flanges. A. H. Stang, M. Greenspan and W. R. Osgood. J. Research NBS, 21, 269 (1938).	RP1130	.15
246	Strength of a riveted steel rigid frame having a curved inner flange. A. H. Stang, M. Greenspan and W. R. Osgood. J. Research NBS, 21, 853 (1938).	RP1161	.10
247	Discussion of "An X-ray study of Ar_3 and Ac_3 points of iron and iron-nickel alloys" by S. D. Smith. J. G. Thompson. Trans.Am.Soc.Metals 26, 255 (1938).		
248	Hydrogen-reduction method for the determination of oxygen in steel. J. G. Thompson and V. C. F. Holm. J. Research NBS, 21, 79 (1938).	RP1114	.05
249	Determinations of oxygen in alloy steels. J.G.Thompson and V. C. F. Holm. J. Research NBS, 21, 87 (1938).	RP1115	.10
250	The "pack" method for compressive tests of thin specimens of materials used in thin-wall structures. C. S. Aitchison and L. B. Tuckerman. Nat. Advisory Comm. Aeron. Report 649 (1939).		.10
251	Dropping tests for measuring the thickness of zinc and cadmium coatings on steel. A. Brenner. J. Research NBS, 23, 387 (1939).	RP1240	.10
252	Seeking new uses for silver. L. J. Briggs. Barron's Financial Weekly 19, No. 4, 9 (Jan. 23, 1939).		
253	Observations on the behavior of steel corroding under cathodic control in soils. I. A. Denison and R. B. Darnielle. Trans. Electrochem. Soc. 76, 199 (1939).		
254	Transformation of austenite on quenching high-purity iron-carbon alloys. T. G. Digges. J.Research NBS, 23, 151 (1939); Trans. Am. Soc. Metals 28,575 (1940).	RP1225	.05
255	Constitution of lead-silver alloys. A. J. Dornblatt. Metals Handbook (Am. Soc. Metals), p. 1523 (1939).		
256	New horizons for silver. A. J. Dornblatt. The Frontier (Armour Inst. of Tech., Chicago) 2, 6 (March 1939).		

Ref.		Series	Price
257	A study of silver plating for industrial applications. A. J. Dornblatt, C. S. Lowe and A. C. Simon. Reprint from Convention Proc., Am. Electroplaters' Soc., p. 214, June 1939; Monthly Rev. (Am. Electroplaters' Soc.) 26, No. 8, 593 (August 1939).		
258	A method of preparation of metallographic specimens. G. A. Ellinger and J. S. Acken. Trans. Am. Soc. Metals 27, 382 (1939).		
259	Effects of aluminum and of antimony on certain properties of cast red brass. H. B. Gardner and C. M. Saeger, jr. J. Research NBS, 22, 707 (1939); Fdy. Tr. J. 62, 78 (1940); Trans. Am. Foundrymen's Assn. 47, 423 (1939).	RP1215	$0.10
260	Separation and colorimetric determination of rhenium and molybdenum. J. I. Hoffman and G.E.F.Lundell. J. Research NBS, 23, 497 (1939).	RP1248	.05
261	Effect of service stresses on impact resistance, X-ray diffraction patterns and microstructure of 25S aluminum alloy. J. A. Kies and G. W. Quick. Nat. Advisory Comm. Aeron. Tech. Report 659 (1939).		.10
262	A sensitive pyramidal-diamond tool for indentation measurements. F. Knoop, C. G. Peters and W. B. Emerson. J. Research NBS, 23, 39 (1939).	RP1220	.10
263	Discussion of "The relation of microstructure to the enamelability of cast iron" by G. H. Spencer-Strong. A. I. Krynitsky. Trans. Am. Foundrymen's Assn. 46, 807 (1939).		
264	Elastic properties of cast iron. A. I. Krynitsky and C. M. Saeger, jr. J. Research NBS, 22, 191 (1939); Metallurgia 20, 213 (Oct. 1939); Fdy. Tr. J. 61, 373 (1939).	RP1176	.15
265	New method of measuring deflection in the transverse-loading test of cast iron. A. I. Krynitsky and C. M. Saeger, jr. Bull. 97, Am. Soc. Testing Materials 23, (March 1939).		
266	Determination of quenching rates in an aluminum alloy of the duralumin type. H. L. Logan. Bul. Am. Physical Soc. 14, 37 (April 12, 1939).		
267	Rate of oxidation of steels as determined from interference colors of oxide films. D. J. McAdam, jr. and G. W. Geil. J. Research NBS, 23, 63 (1939).	RP1221	.10
268	Tensile-elastic properties of 18-8 chromium-nickel steel as affected by plastic deformation. D. J. McAdam, jr. and R. W. Mebs. Nat. Advisory Comm. Aeron. Tech. Report 670 (1939).		.15
269	The weathering of light-metal alloys used in aircraft. W. H. Mutchler. Nat. Advisory Comm. Aeron. Tech. Report 663 (1939).		.15

Ref.		Series	Price
270	Tidewater and weather-exposure tests of metals used in aircraft. W. H. Mutchler and W. G. Galvin. Nat. Advisory Comm. Aeron. Tech. Note 736 (1939).		
271	The column strength of two extruded aluminum-alloy H-sections. W. R. Osgood and M. Holt. Nat. Advisory Comm. Aeron. Tech. Report 656 (1939).		$0.10
272	Survey of roofing materials in the northeastern states. H. R. Snoke and L. J. Waldron (1939).	BMS29	.10
273	Strength of a welded steel rigid frame. A. H. Stang and M. Greenspan. J. Research NBS, 23, 145 (1939).	RP1224	.05
274	Preparation of high-purity iron. J. G. Thompson and H. E. Cleaves. J. Research NBS, 23, 163 (1939).	RP1226	.10
275	Preparation of crucibles from special refractories by slip-casting. J. G. Thompson and M. W. Mallett. J. Research NBS, 23, 319 (1939).	RP1236	.10
276	Development of a fibrous texture in cold-worked rods of copper. H. C. Vacher. J. Research NBS, 22, 651 (1939).	RP1210	.10
277	Silver in industry. L. Addicks. Reinhold Publ. Corp. (1940).		
278	Extension of pack method for compressive tests. C. S. Aitchison. Nat. Advisory Comm. Aeron. Tech. Note 789 (1940).		
279	What metals can be deposited from aqueous solutions? W. Blum. Mon. Rev., Am. Electroplaters' Soc. 27, 923 (Dec. 1940).		
280	Outdoor exposure tests of electroplated nickel and chromium coatings on steel and nonferrous metals. W. Blum and P. W. C. Strausser. J. Research NBS, 24, 443 (1940).	RP1293	.05
281	Influence of austenitic grain size on the critical cooling rate of high-purity iron-carbon alloys. T. G. Digges. J. Research NBS, 24, 723 (1940); Tr. Am. Soc. Metals 29, 285 (1941); The Metallurgist (London), p. 133 (October 1940).	RP1308	.10
282	The transformation of austenite. T. G. Digges. Metal Progress 38, 419 (Oct. 1940).		
283	Thermal expansion of electrolytic chromium. P. Hidnert. J. Research NBS, 26, 81 (1941).	RP1361	.05
284	Thermal expansion of some chromium-vanadium steels. P. Hidnert. J. Research NBS, 24, 25 (1940).	RP1269	.05
285	Observations on the tarnishing of stainless steels on heating in vacuo. V. C. F. Holm. Chapter in book, "Surface treatment of metals". Am. Soc. Metals (1940).		
286	Electrode potential measurements as a means of studying the corrosion characteristics of wrought aluminum alloys of the duralumin type. H. L. Logan. J. Research NBS, 25, 315 (1940); The Metallurgist, June 27, 1941.	RP1328	.05

Ref.		Series	Price
287	Strength of soft-soldered joints in copper tubing. A. R. Maupin and W. H. Swanger (1940).	BMS58	$0.10
288	Influence of cyclic stress on corrosion pitting of steels in fresh water, and influence of stress corrosion on fatigue limit. D. J. McAdam, jr. and G. W. Geil. J. Research NBS, 24, 685 (1940).	RP1307	.10
289	Tensile-elastic properties of typical stainless steels and nonferrous metals. D. J. McAdam, jr. and R. W. Mebs. Nat. Advisory Comm. Aeron. Tech. Note 893(1941).		
290	Corrosion of metals used in aircraft. W. H. Mutchler. J. Research NBS, 25, 75 (1940); The Metallurgist, June 27, 1941.	RP1316	.10
291	Surface treatment of steel prior to painting. R. E. Pollard and W. C. Porter (1940); Metal Finishing, 38, 6[illegible] (1940).	BMS44	.10
292	Colorimetric determination of arsenic in ferrous and nonferrous alloys. C. J. Rodden. J. Research NBS, 24, 7 (1940).	RP1267	.05
293	Effect of low temperatures on the properties of aircraft metals. S. J. Rosenberg. J. Research NBS, 25, 673 (1940).	RP1347	.10
294	Impact properties of low-nickel steel -- a discussion. S. J. Rosenberg. Trans. Am. Soc. Metals 28, No. 1, 19 (1940).		
295	Effect of rate of heating through the transformation range on austenitic grain size. S. J. Rosenberg and T. G. Digges. J. Research NBS, 25, 215 (1940); The Metallurgist, p. 2, Feb. 2[illegible], 1941; Trans. Am. Soc. Metals 29, 638 (1941).	RP1322	.15
296	Discussion of "Properties of hot-pressed and sintered copper powder compacts" by C. G. Goetzel. W. H. Swanger. Trans. Am. Soc. Metals 28, 929 (1940).		
297	Pure irons - ancient and modern. J. G. Thompson. Min. & Met. 21, 231 (1940).		
298	Note on the effects of cobalt and nickel in storage batteries. G. W. Vinal, D. N. Craig and C. L. Snyder. J. Research NBS, 25, 417 (1940).	RP1335	.05
299	Metallic roofing for low-cost house construction. L. J. Waldron (1940); Condensation, Am. Roofer 31, No. 3, 10 (March 1941).	BMS49	.10
300	Roofing in the United States - Results of a questionnaire. L. J. Waldron and H. R. Snoke (1940).	BMS57	.10
301	Tests of corrosion inhibitors for water treatment in air-conditioning equipment. J. H. Wilson and E. C. Groesbeck. J. Research NBS, 24, 665 (1940); Heating and Ventilating 37, No. 11, 55 (Nov. 1940).	RP1305	.05
302	Microstructural characteristics of high-purity alloys of iron and carbon. T. G. Digges. J. Research NBS, 27, 65 (1941).	RP1403	.10

Ref.		Series	Price
303	The tee bend test as a method of determining weldability of steel. G. A. Ellinger, A. G. Bissell, M.L.Williams. Am. Welding Soc. Annual Meeting, Oct. 1941. To be published in Journal of American Welding Society.		
304	Temperature measurement of red brass (85-5-5-5) during melting and casting. H. B. Gardner. Chapter in book "Temperature: Its measurement and control in science and industry", Reinhold Publishing Corpn. (1941).		
305	Influence of grinding treatments on the surface hardness of intaglio printing plates of 0.33-percent carbon steel. H. K. Herschman and F. Knoop. J. Research NBS, 26, 261 (1941).	RP1374	$0.10
306	Determination of hydrogen in ferrous materials by vacuum extraction at 800°C and by vacuum fusion. V.C.F.Holm and J. G. Thompson. J. Research NBS, 26, 245 (1941).	RP1377	.05
307	Effect of the quenching rate on susceptibility to intercrystalline corrosion of heat-treated 24S aluminum alloy sheet. H.L.Logan. J. Research NBS, 26, 321 (1941).	RP1378	.10
308	The technical cohesive strength of metals. D. J. McAdam, jr. Am. Soc. Mech. Engrs. Annual Meeting, Preprint (Dec. 1-5, 1941).		
309	Influence of stress on the corrosion pitting of aluminum bronze and monel metal in water. D. J. McAdam, jr. and G. W. Geil. J. Research NBS, 26, 135 (1941).	RP1366	.15
310	Pitting and its effect on the fatigue limit of steels corroded under various conditions. D. J. McAdam, jr. and G. W. Geil. Am. Soc. Testing Materials Annual Convention, Preprint No. 33 (1941).		
311	The tensile-elastic properties at low temperatures of 18-8 chromium-nickel steel, as affected by heat treatment and by slight plastic extension. R. W. Mebs and D. J. McAdam, jr. Nat. Advisory Comm. Aeron. Tech. Note 818 (1941).		
312	Induction heating. H. S. Rawdon. Steel 108, 224, Jan. 6, 1941.		
313	Effect of grain size and heat treatment upon impact-toughness at low temperatures of medium-carbon forging steel. S. J. Rosenberg and D. H. Gagon. J. Research NBS, 27, 159 (1941).	RP1410	.10
314	Survey of roofing materials in the North Central States. H. R. Snoke and L. J. Waldron (1941).	BMS 75	.15
315	Development of texture in copper by cold rolling. H. C. Vacher. J. Research NBS, 26, 385 (1941).	RP1385	.10
316	Table of lattice constants. H. C. Vacher. Metal Progress 39, 581, 715; 40, 127 (1941).		

Publications Pending

Ref.

317 The rate of oxidation of typical nonferrous metals as determined from interference colors of oxide films. D. J. McAdam, jr. and G. W. Geil.

318 Tide-water and weather-exposure tests on metals used in aircraft. F. H. Mutchler and W. G. Galvin.

319 Relief of residual stress in streamlined tie-rods. R. E. Pollard and F. M. Reinhart.

Letter Circulars (obtainable gratis through this Bureau)

LC 54 Protection of track-scale parts from corrosion
LC150 Dry etching of glass
LC191 Testing laboratories equipped for mechanical tests of metals and other engineering materials
LC230 Glycerine or ethylene-glycol in foundry sand mold facing mixtures
LC241 Bibliography on sulphur and phosphorus in iron and steel
LC248 Sintering tests of molding sand
LC249 Material for filling etched lines on thermometers
LC252 Rubber binders for foundry cores
LC363 Properties and testing of foundry sands
LC405 Testing machines for determining the strength and other properties of engineering materials in the laboratories of the National Bureau of Standards
LC426 Publications on the platinum metals
LC440 Testing laboratories equipped for metallurgical tests
LC444 Hardened copper
LC461 Permanent magnet steel
LC486 Metals do not "crystallize" under vibration
LC487 Nomenclature of the copper alloys - brass and bronze
LC493 Solders and soldering
LC502E Plumbing materials and equipment as related to low-cost housing
LC502G Roofing materials for low-cost housing construction
LC502H Surface treatment for corrosion protection of steel members for low-cost housing construction
LC510 Protective coatings for underground piping systems
LC518 The corrosivity of soils
LC519 Cathodic protection of pipe lines
LC521 Corrosion and protection of underground tanks and burial vaults
LC530 Salt spray test
LC534 Commercial testing laboratories equipped for chemical analysis
LC535 Aluminum foil insulation
LC544 Policy of the National Bureau of Standards with regard to tests for agencies outside the Bureau
LC595 Engineering Mechanics: Publications by members of the staff of the National Bureau of Standards
LC601 Sources of information on the properties of metals and alloys
LC616 Etching of designs and lettering on metals

Letter Circulars (continued)

LC625 Electrodeposition: Publications by staff of the National Bureau of Standards
LC630 Bluing of iron and steel
LC664 Metallurgy: Publications by members of the staff of the National Bureau of Standards (1931-1941)

Technical Information on Building Materials (TIBM Series)
(obtainable gratis through this Bureau)

TIBM- 1 Corrosion of metals used in house construction
TIBM- 2 Life of nonferrous screen wire cloth
TIBM-10 Corrosion of metals used in house construction: Atmospheric corrosion of ferrous metals
TIBM-17 Corrosion of metals used in house construction: Atmospheric corrosion of galvanized ferrous sheet metals
TIBM-28 Painting of ferrous metals
TIBM-29 Corrosion of ferrous metals underground
TIBM-41 Roofing tin (terne plate) for house construction
TIBM-42 "Black" and galvanized sheets for use in house construction
TIBM-43 Aluminum paints
TIBM-50 Corrosion of nonferrous metals underground
TIBM-61 Study of underground corrosion of nonbituminous metal coverings

Commercial Standards
(obtainable gratis through this Bureau)

CS 19-32 Foundry patterns of wood (color system for)

Lorentz, M. G. 48
Lundell, G. E. F. 145, 207, 213, 260.

Mallett, M. W. 275
Maupin, A. R. 287
McAdam, jr. D. J. 16, 17, 49, 103, 104, 239, 267, 268, 288, 289, 308, 309, 310, 311, 317.
McKee, S. A. 214
Mebs, R. W. 268, 289, 311.
Meggers, W. F. 105, 176, 177.
Mutchler, W. H. 1, 18, 146, 240, 269, 270, 290, 318.

Nusbaum, C. 160

Osgood, W. R. 124, 241, 245, 246, 271.

Parsons, D. E. 183
Peters, C. G. 262
Petrenko, S. N. 178
Pollard, R. E. 242, 291, 319.
Porter, W. C. 242, 291.

Quick, G. W. 19, 50, 51, 76, 147, 215, 261.

Ramberg, W. 178, 220.
Rawdon, H. S. 20, 52, 53, 54, 55, 106, 107, 148, 179, 216, 217, 312.
Reinhart, F. M. 319
Rodden, C. J. 292
Roeser, W. F. 21, 77, 78, 79, 108, 109, 127, 149, 150, 243.
Rogers, B. A. 110, 151, 180.
Rosenberg, S. J. 22, 23, 24, 111, 218, 219, 293, 294, 295, 313.
Russell, N. N. 177

Saeger, jr. C. M. 25, 26, 35, 36, 39, 56, 57, 68, 80, 100, 112, 113, 114, 136, 171, 259, 264, 265.
Sager, T. P. 27
Sale, P. D. 115
Sanford, R. L. 28, 58, 93, 181.
Scherrer, J. A. 152, 182.
Schofield, F. H. 79
Schoonover, I. C. 116, 153, 180.
Scott, G. N. 154
Scott, R. B. 220
Scribner, B. F. 105, 136.
Seaquist, E. O. 160
Shelton, S. M. 29, 81, 82, 117, 125, 155.
Silsbee, F. B. 220
Sinclair, S. E. 84
Snoke, H. R. 244, 272, 300, 314.
Snyder, C. L. 298
Stang, A. H. 124, 156, 157, 165, 183, 184, 185, 220, 245, 246, 273.
Strausser, P. W. C. 87, 118,137,162,280.
Stull, R. T. 119
Swanger, W. H. 30, 31, 59, 81, 82, 120, 155, 186, 287, 296.
Sweetman, L. R. 156, 165, 184, 185.

Taylor, R. H. 102
Thomas, J. L. 158, 187.
Thompson, J. G. 32, 60, 61, 62, 83, 121, 122, 123, 128, 159, 188, 189, 190, 191, 201, 221, 247, 248, 249, 274, 275, 297, 306.
Tucker, W. A. 13, 84.
Tuckerman, L. B. 124, 251.

Vacher, H. C. 33, 34, 63, 85, 191, 192, 221, 222, 276, 315, 316.
Van Dusen, M. S. 125
Vinal, G. W. 298

Waldron, L. J. 7, 126, 148, 245, 272, 299, 300, 314.
Walkup, H. H. 64, 94.
Waters, C. E. 223
Wensel, H. T. 21, 69, 78, 109, 127, 150.
Whittemore, H. L. 157, 160, 183, 184,185.
Wichers, E. 134
Williams, M. L. 303
Willier, H. O. 240
Wilson, B. 178
Wilson, J. H. 199, 200, 226, 301.
Wohlgemuth, G. F. 186

SUBJECT INDEX

Air-conditioning
- tests of corrosion inhibitors for water treatment in - equipment, 301

Aircraft
- weathering of Al alloy sheet matls. used in-, 146, 269, 318.
- strength of welded- joints, 195
- plastic extension on dastic props. of high strength stainless steels used in-, 268
- effect of low temps. on props. of -metals, 293
- - tubing, 241
- exposure tests of -metals, 270,318.
- corrosion of - metals, 290

Alloys
- of bismuth, 32
- props. of cast Ni-Cr-Fe alloys and of some alloy steels at elevated temps., 45
- of zinc, 48
- of Ni-Cr-Fe, props. at 1600°F, 84
- high-purity Fe-C - 234, 302
- heat-resisting -, 235
- colorimetric deter. of As in ferrous and nonferrous -, 292

Alloy steel
- tensile props. of - at elevated temperatures, 13
- creep, temps. Cr-V steels, W, Mo-, 46
- thermal expansion of some Cr-V steels, 284
- impact props. of low Ni steel, 294
- tensile-elastic props. at low temps. of 18-8 Cr-Ni steel, as affected by heat treatment and by slight plastic extension, 311

Aluminum (and aluminum alloys)
- oxide films as base for coatings, 1
- surface coatings of -, 18
- anodic treatment of -, baths, 89, 196, 198
- effect of running qualities of-,100
- Al-Be-Mg, deter. of, 142

Aluminum (continued)
- sheet, -weathering of, 146
- gallium in-, -gallium content, 152
- -alloy rivets, 163
- Mn-Cu-Al alloys, elec. resistence of, 187
- anodizing of -alloys in chromic acid solutions of different concentrations, 197
- deterioration of chromic acid baths used for anodic oxidation of -alloys, 200
- redeter. of atomic wt. of -, 207
- heat treated -sheet, quenching rate, susceptibility to intercrystalline corrosion, 307
- electrode potential measurements for studying corrosion characteristics of wrought - of duralumin type, 286
- effects of - on props. of brass, 259
- effects of stresses on props. of -, 261
- treating anodic coatings on -, 226
- deter. of quenching rates in - of duralumin type, 266
- column strength of extruded -, 271
- influence of stress on corrosion pitting of - bronze in water, 309

Antimony
- effect of-, on bearing bronze, 38
- thermal expansion of-, 135
- thermal expansion of Pb- alloys, 168
- distillation and separation of-, 182
- effects of - on props. of brass, 259

Arsenic
- distillation and separation of-, 182
- colorimetric deter. of - in ferrous and nonferrous alloys, 292

Austenite
- transformation of -, 282

Batteries
- effects of Co and Ni in storage-, 298

Bearing(s), bearing metals
- -bronze, casting temp. and iron content, effect of, 37
- -bronze, Sb, effect of, 38

- Bearings(continued)
  - mech. props. at dif. temps., 40
  - -bronze, tin-free, leaded, 70
  - -bronze, lead-bearing,patent, 71
  - -white metal, props. at elev. temps., 72
  - thermal expansion of-, 95
  - pintle-, accelerated service tests, 156
  - journal-design related to various factors, 214
- Beryllium
  - determination of Al-Be-Mg, 142
  - Cu- alloys, thermal expansion of, 167
- Bismuth
  - alloys of --, 32
- Brass
  - -cast red, factors affecting props., 39
  - -cast red, sulphur and iron, effect on props., 68
  - cast red-, studies as related to basic classification for specifications, 113
  - wear of-, frictional resistance in shrink fits, 120
  - effects of Al and Sb on props. of cast red -, 259
  - temp. measurement of red- during melting and casting, 304
- Bronze
  - bearing-, casting temp. and iron content, effect of, 37
  - bearing-, effect of Sb, 38
  - bearing-, tin-free, leaded, 70
  - bearing-, lead bearing,patent, 71
  - bearing-, thermal expansion, 95
  - Al-, corrosion pitting, 309
- Cadmium
  - and zinc, thickness of coating, 137
  - coating on steel, 162
- Carbon
  - equilibrium of-, in liquid iron, 34, 85
  - thermal expansion of artificial graphite and carbon, 96
  - effect of -- on cooling rate of high-purity Fe-C alloys, 228
- Carbon (continued)
  - effect of -- on hardenability of high-purity Fe-C alloys, 229
  - high-purity Fe-C alloys, 234
  - micro. characteristics of high-purity alloys of iron and --, 302
- Cast iron
  - -volume change during casting, method for, 35, 36
  - gray-, props. as affected by casting conditions, 114
  - austenitic grain-size in-, 170
  - method for preparing - transverse test bars, 171
  - austenitic transformation in-, 236
  - relation of microstructure to enamelability of-, 263
  - elastic properties of-, 264
- Casting(s)
  - volume change of metals on-, 56
  - die- alloy, Zn-base, dimensional changes, 99
  - speculum metal-, 112
  - preparation of crucibles from special refractories by slip-, 275
  - temp. measurement of red brass during melting and-, 304
- Cement
  - high vacuum, ethylene pthalate, 27
- Chemical
  - separation and colorimetric deter. of rhenium and molybdenum, 260
  - colorimetric deter. of As in ferrous and nonferrous alloys, 292
- Chromium
  - -plated steel gages, wear, 10
  - accelerated tests, Ni and Cr plating on steel, 118
  - -deposition, chromic acid baths, 140
  - arc spectrum of --, 141
- Coatings
  - bath for, and method of - magnesium and its alloys, 225
  - treating anodic - on Mg and Al alloys, 226
  - surface treatment for corrosion protection of steel, 242
  - dropping tests for measuring thickness of Zn and Cd -- on steel, 251

Coatings (continued)
- exposure tests of Cr - on steel and nonferrous metals, 280
- treatment, surface, of steel before painting, 291

Cobalt
- -gold resistance alloys, 158
- effects of- in storage batteries, 298

Cold working
- effect of-, on metals, 53

Coloring
- use of heat- in an investigation of oxidation of steels, 267
- nonferrous metals, 317

Columbium
- thermal expansion of -, 73
- arc and spark spectra of-, 176

Conductivity
- thermal-, irons, steels and other metals at 0-600°C, 82
- thermal-, irons, steels, 100 - 500°C, 117
- thermal-, apparatus for determining up to 600°C, 125

Cooling
- critical - rate of high-purity Fe-C alloys, 281

Copper
- -soldered joints, weathering of, 47
- cold rolling, effect on-, 122
- -Be alloys, thermal expansion of, 167
- elec. resist. of Cu-Mn-Al alloys, 187
- large single crystals, 188
- fibrous texture in cold-worked rods of -, 276
- -tubing, strength of soft-soldered joints in, 287
- props. of -powder compacts, 296
- development of texture in - by cold-rolling, 315

Corrosion
- soil-, 91, 212
- soil-, Bur. Stds., 14, 15
- of duralumin and Al alloys, 146
- soil-, correlation with soil characteristics, 2
- oxygen factor in submerged-, 7
- soil-, steel uncoated, 1930 results, 14

Corrosion (continued)
- soil-, nonferrous metals, misc. materials (1930), 15
- effect of stress, general resume, 16
- effect of stress, water composition, 17
- influence of stress on -, 49
- corrosiveness of certain Ohio soils, 90
- silver may answer - problems, 110
- pitting of ferrous and nonferrous specimens, 102
- surface finish of steel, effect on-, under water, 126
- of pipe lines, 131
- -survey of pipe lines, 132
- soil-, gas industry, 133, 233
- underground-, 144
- atmospheric exposure of screen wire cloth, 147
- continuous flow, steel pipe, 148
- of nonferrous metals underground, 172
- underground -, 173, 237
- soil- (1934) nonferrous metals, 174
- soil- (1934) ferrous specimens, 175
- tests of welded low C stainless steel, 203
- pipe-, 204, 237, 238
- soil- (1934) bituminous coatings for underground service, 210
- soil- (1934) non-bituminous coatings for underground use, 211
- atmospheric- testing, 216
- surface treatment for - protection of steel, 242
- weathering of aircraft alloys, 269, 270, 318
- -of steel under cathodic control in soils, 253
- -inhibitors for water treatment in airconditioning equipment, 301
- tarnishing of stainless steels, 285
- -characteristics of wrought Al alloys, 286
- -pitting of steels; influence of stress- on fatigue limit, 288
- -of aircraft metals, 290
- -of heat treated Al alloy sheet, effect of quenching rate, 307
- -pitting of aluminum bronze and monel metal in water, influence of stress, 309

Crystallography
- development of fibrous texture in cold-worked rods of copper, 276
- development of texture in copper by cold rolling, 315
- table of lattice constants, 316

Crucibles
- preparation of-, from special refractories by slip-casting, 275

Diffusion
- in solid metals, 209

Elastic properties
- of cast iron, 264
- of typical stainless steels and nonferrous metals, 289
- at low temps of 18-8 Cr-Ni steel as affected by heat treatment and slight plastic extension, 311

Electrodeposited metal
- rapid electrodeposition of Fe from ferrous chloride baths, 208
- silver plating for industrial applications, 257
- - from aqueous solutions, 279

Endurance tests
- of steel, 6

Etching
- oxalic acid-, for stainless steel, 164

Failure
- of heat-treated steel wire in cables of Mt. Hope, R.I. suspension bridge, 186

Fatigue
- steel, rotating beam vs axial loading, 6
- -test for wire, 29
- steel, Zn coating, effect of-, 59
- galv. wire, stress, tensile, 81
- effect of-, corrosion pits and notches, 103, 104
- -props. of steel wire, 155
- influence of stress corrosion on - limit, 288
- effect of pitting on - limit of steels corroded under various conditions, 310

Foundry
- binders for core or mold, 57
- method for determining flow of molten metals in molds, 26
- molten metal, surface tension, 74
- molten metal, running quality of (castability), 75
- core and mold binders, coating methods, etc., patents, 80
- effect of melting conditions on running qualities of aluminum, 100

Furnace
- steel-, bonding magnesite lining for, 41
- induction heating, 312

Gages
- resistance of Cr-plated to wear, 10

Gallium
- preparation of pure-, 97
- freezing point of-, 108
- purification of-, 136
- atomic weight of-, 145
- in aluminum, 152

Gases, Inclusions
- O and N in iron, deter. of, 33
- O, N, H, methods for deter., 60
- N content of some standard samples, 61
- Al_2O_3, SiO_2 in steel, deter. of, 62
- O, H, N in metals, 63
- gas appliances, attachments, cautions, 92
- effect on steel, general, 121
- O in steel, international cooperative study of test methods, 123, 191
- effect of temp. upon interaction of-, with liquid steel, 222

Gold
- -cobalt resistance alloys, 158

Graphite
- thermal expansion of artificial graphite and carbon, 96

Hafnium
- second spectrum of-, 105

Hardness
- deter. of Brinell number of metals, 178
- of intaglio printing plates of C steel, 305

Heat treatment
- of steel, 169
- of steel, tempering, thermo-magnetic investigation, 5, 58
- effect of C and -, on wear of steel, 22
- of iron alloys, production and properties, 169
- effects of - on growth, density and structure of some heat-resisting alloys, 235
- tensile-elastic props. of Cr-Ni steel at low temps. affected by-,311
- effect of - upon impact-toughness of medium C forging steel at low temps., 313

High temperatures
- tensile props. of alloy steels at elevated temps., 13
- flow in rail steel, 19
- rare metals for service at-, 30
- refractories, special for-, 31
- 18-8 steel, stability at-, 43
- props. of cast Ni-Cr-Fe alloys and of some alloy steels at elevated temps., 45
- rail steel, effect on impact resistance, 50
- rail steel, effect on tensile properties, 51

Hydrogen
- -O, and N, methods for deter., 60
- in metals, general disc., 63
- -reduction method for deter. of O in steel, 248
- deter. of - in ferrous matls. by vacuum extraction and fusion, 306

Impact
- resistance, effect on, rail steel of high temps., 50
- properties of bolts, 160
- theory of - testing, 259
- effect of service stresses on - resist. etc. of Al alloy, 261
- props. of low Ni steel, 294
- effect of grain size and heat treatment upon - toughness at low temps. of C forging steel, 313

Induction
- heating, 312

Iridium
- freezing point of --, 69

Iron
- preparation of pure -, 190
- work on -, at Bu. Stds., 20
- S and -, effect on cast red brass, 68
- thermal conductivity of-, at various temperatures, 82, 117
- the metal --, 128
- heat treatment of-, 169
- alpha gamma transformation in high purity -, 189
- equilibrium in the reaction hydrogen and iron oxide in liquid- at 1600°C, 192
- prep. of iron oxide as source of high-purity -, 201
- high-purity -C alloys, 205, 228, 229
- X-ray study of Ar_3 and Ac_3 points of -, 247
- high-purity -C alloys, 234
- transformation of austenite on quenching high-purity -carbon alloys, 254
- preparation of high-purity -, 274
- influence of austenitic grain size on critical cooling rate of high-purity carbon- alloys, 281
- pure --, 297
- micro characteristics of high-purity alloys of - and carbon, 302

Lead
- -antimony alloys, 168
- constitution of -silver alloys, 255

Machinability
- of steel, 3
- of steel forgings, 4
- general discussion of-, 42
- commercial aspects of-, 42
- design and performance, Nat. Bu. Stds. metal. work contrib. to -, 44
- surface hardness changes of steel due to cutting, 67

Machinery
- design and performance, 42, 44

Magnesium
- -Al-Be, determination of, 142
- anodic coating of -alloys, 199
- bath for, and method of coating - and its alloys, 225
- methods of treating anodic coatings on -, 226

Magnetic
thermo-, A_0 in .75 C steel, 28, 58
alternating current - comparator, 181
method for measuring thickness of Ni coatings on non-magnetic base metals, 194
method for measuring thickness of non-magnetic coatings on iron and steel, 284
Manganese
elec. resist. alloys of Cu-Mn-Al, 187
Metal spray
apparatus, 25
Metallography
of high-purity Fe-C alloys, 205
factors influencing austenitic grain size in high-purity steels, 227
rapid photomicrography, 240
preparation of metallographic specimens, 258
transformation of austenite, etc., 254, 282
effect of service stresses on microstructure of Al alloy, 261
relation of microstructure to enamelability of cast iron, 263
influence of austenitic grain size on cooling rate of Fe-C alloys, 281
effect of rate of heating through transformation range on austenitic grain size, 295
micro. characteristics of high-purity alloys of Fe and C, 302
effect of grain size upon impact-toughness at low temps. of medium C forging steel, 313
Molybdenum
colorimetric deter. of -, 260
National Bureau of Standards
work on iron, steel and hardware at -, 20
Visitors' manual of -, 193
Nickel and nickel alloys
-Cr-Fe alloys, tensile, 45
and Cr plating, accelerated tests on steel, 87, 118
-coatings on non-magnetic base metals, magnetic methods for measuring thickness of, 194
Nickel (continued)
X-ray study of Ar_3 and Ac_3 points of Fe-- alloys, 247
effect of - in storage batteries, 298
influence of stress on corrosion pitting of monel metal in water, 309
Nitrogen
deter. of O and -, in iron, 33
methods for deter. of O, H and - in metals, 60
-content of some standard samples, 61
- O, H in metals, general, 63
Nonferrous
corrosion of-, 15, 174
finding uses for -, commercial aspects, 52, 54, 55
metals, underground, 172
outdoor exposure tests of electroplated Ni and Cr coatings on-, 280
tensile-elastic props. of -, 289
rate of oxidation of - , deter. from interference colors of oxide films, 317
Oxygen
and N in iron, deter. of, 33
factor in submerged corrosion, 7
and C, equilibrium of, in liquid iron, 34, 85
- N and H, methods for deter., 60
- H and N in metals, disc. of, 63
in steel, deter. of, 123, 159, 191
deter. of -, in steel, 248
deter. of -, in alloy steels, 251
Phosphorus
-effect on low C steel, Report of Joint Committee, 107
Pipe
use of Bureau of Standards data in the design and protection of - lines, 101
continuous - flow corrosion tests of steel -, 148
-line fabrics, 154
-corrosion, 204, 237
-line protection, 233, 238
Platinum
and Pt-Rh thermocouples, 78
freezing point of -, 21
-Rh alloys, properties of, 66, 86
separation of-, gravimetric deter., 134
metals, 166

Powdered metals
props. of hot-pressed and sintered copper powder compacts, 296
Precision circles
graduation and calibration of-, 98
Protective coatings
for aluminum alloys, 18
specifications for-, 143
Mesle's method, thickness of metal coatings, 161
Zn and Cd coating on steel, 162
Quenching
ethylene glycol, glycerine, sodium silicate solutions for steel, 8
of steel, intermediate between oil and water, 9
transformation of austenite on - high-purity Fe-C alloys, 254
deter. of - rates in aluminum alloy of duralumin type, 266
effect of - rate on susceptibility to intercrystalline corrosion of aluminum alloy sheet, 307
Rails
-steel, flow in, 19
-steel, effect on impact resistance, 50
-steel, effect on tensile props., 51
service test results of Ti-treated and Si-treated steel -, 215
Rare metals
props. of - for high temp. service, 30
Refractories
- special for high temps., 31
bonding magnesite lining for steel furnaces, 41
prep. of crucibles for special - by slip-casting, 275
Rhenium
chemistry of, 213
separation and colorimetric determination of -, 260
Rhodium
thermoelectric, alloys of Pt-Rh, 66
-Pt alloys, props. of, 86
freezing point of -, 109
Rivet (s)
mech. props. of Al alloy -, 163
Rolling
cold-, indentation hardness of copper, 122
development of texture in copper by cold-, 315
Roofing materials
survey of - in southeastern states, 244
in northeastern states, 272
in north central states, 314
roofing in the U. S., 300
metallic roofing for low-cost house construction, 299
Sand (s)
-grading; grain distribution index, 11
fineness test of molding -, 138
Screen wire
cloth, exposure tests of -, 76
atmospheric exposure tests of- cloth, 147
Silver
freezing temp. of -, 77
-corrosion problems, 110
-equipment, 116
sheet-, for chemical equipment, 151
- deter. of small amounts, colorimetric method, 153
props. and uses of -, 180
development of new uses for -, 230
- for plant use, 231
- fine, sterling and coin, 232
seeking new uses for -, 252
constitution of lead- alloys, 255
new horizons for -, 256
- plating for industrial applications, 257
- in industry (book), 277
Solders
weathering of Cu soldered joints, 47
strength of soft-soldered joints in Cu tubing, 287
Specifications
for protective coatings, 143
Stainless steel (or iron)
- oxalic etch, 164
corrosion tests of welded low C stainless steel, 203
plastic extension on elastic props. of high strength -, aircraft, 268

Stainless steel or iron (continued)
- tarnishing of - on heating in vacuo, 285
- tensile-elastic props. of typical-, 289
- tensile-elastic props. at low temps. of -, 311

Standard
- samples, N content of some steel, 61

Steel
- heat treatment of -, 169
- -forgings, effect of composition and heat treatment on, 4
- tempering, thermomagnetic investigation of-, 5, 58
- fatigue of-, rotating beam vs axial loading, 6
- quenching of -, 8, 9
- props. of -, at elevated temps. by short time tests, 13
- uncoated-, 1930, results of soil corrosion investigation, 14
- work on -, at Bu. Stds., 20
- wear of -, effect of C and heat treatment, 22
- wear of C -, 23
- -gages, Cr-plated, 10
- stability of 18-8- at high temps.,43
- effect of Zn coating on-, 59
- N content of some standard samples of -, 61
- Preece test for zinc coating on-, 64, 94
- spark test for C in -, 65
- surface changes (hardness) due to cutting, 67
- thermal conductivity of -, at various temps., 82, 117
- deter. of small amounts of zinc in-, 88
- 0.8% C, aging of -, 93
- low C-,effect of P on, Report of Joint Committee, 107
- forging-, effect of S on, Report of Joint Committee, 107
- effect of oxide film on-, 111
- structural - at elev. temps., compression tests, 115
- -and brass, frictional resistance in shrink fits, 120

Steel (continued)
- effect of gases on -, 121
- -floor plates, 124
- surface finish of-, effect on corrosion under water, 126
- hardening 1% C steel, 129, 130
- tower columns, G. W. Bridge, tests on, 157
- S in -, 179
- tests of - columns incased in concrete, 183
- C-Mn-, tests of large H-shaped columns fabricated from, 184
- -chord members for Bayonne Bridge, tests of, 185
- plastic deformation of sheet and strip-, and relation to deep-drawing properties, 217
- fine-grained structural - for low-temp. pressure vessel service, 218
- use of heat coloring, oxidation of-,267
- surface treatment for corrosion protection of-, 242, 291
- strength of riveted -rigid frame, 245, 246
- dropping tests for measuring thickness of coatings on -, 251
- corrosion of - under cathodic control in soils, 253
- strength of welded - rigid frame, 273
- corrosion pitting of -, 288
- tee bend test for deter. weldability of -, 303
- grinding treatments on surface hardness of printing plates of -, 305
- effect of pitting on fatigue limit of -, 310
- effect of grain size and heat treatment upon impact-toughness at low temps. of medium C forging -, 313

Strength
- crinkling and bending - of round aircraft tubing, 241
- -of riveted steel rigid frame, 245, 246, 273
- column - of extruded Al alloy section,271
- of soft-soldered joints in Cu tubing,287
- technical cohesive - of metals, 308

Stress
- effect of -corrosion, general resume, 16

Stress(es)
  effect of - corrosion, water composition, 17
  influence of - on corrosion, 49
  -tensile, of galvanized wire, 101
  pulsating -, 101
  effect of service - on props. of aluminum alloy, 261
  influence of cyclic, on corrosion pitting of steels in fresh water and stress corrosion on fatigue limit, 288
  influence of - on corrosion pitting of aluminum bronze and monel metal in water, 309
  relief of residual - in tie-rods,319
Sulphur
  and iron, effect of cast red brass on properties, 68
  effect of-, on forging steels, Report of Joint Committee, 107
  in steel, 179
Tantalum
  superconducting transition of-, 220
Temperature measurement
  international comparison of temp. scales (660 - 1063°C), 79
  scale of color temperature, 127
  - of red brass during melting and casting, 304
Temperatures
  props. by short-time tests of steel at elevated -, 13
  white-metal bearing alloys at elevated temps., 72
  freezing temp. of silver, 77
  -scales, 79
  Ni-Cr-Fe alloys, props. at 1600°F, 84
  prolonged- at 110°C, 93
  -scale of color, 127
  fine-grained structural steels for low-pressure vessel service, 218
  tensile-elastic props. at low- of Cr-Ni steel, 311
  effect of grain size and heat treatment upon impact-toughness at low- of medium C forging steel, 315
Tempering
  prolonged tempering at 100°C and aging at room temp. of 0.8% C steel, 93
Tensile
  props. of alloy steels at elevated temps., 13
  props. of cast Ni-Cr-Fe alloys and of some alloy steels at elevated temps., 45
  props. of rail steel at elevated temps., 51
  static tensile props. of bolts, 160
  -elastic props. of stainless steels and nonferrous metals, 289
  -elastic props. at low temps. of Cr-Ni steel, 311
Test (ing)
  fatigue - of wire, 29
  spark -, for C in steel, commercial utility of, 65
  of flat steel plate floor under load, 124
  atmospheric exposure - on screen wire cloth, 147
  on G. W. Bridge tower columns, 157
  insp. and tens. - of worn wire ropes, 165
  of tool-resisting prison bars, 181
  of steel columns incased in concrete, 183
  of large H-shaped columns fabricated from C-Mn steel, 184
  of steel chord members for Bayonne Bridge, 185
  soil corrosion -, 212
  torsion -, of tubes, 220
  theory of impact -, 239
  pack method for compressive -, 250,278
  dropping - for measuring thickness of Zn and Cd coatings on steel, 251
  new method of measuring deflection in transverse-loading - of cast Fe, 265
  tee-bend as method of deter. weldability of steel, 303
Thermal analysis
  thermo-magnetic, A_0 in .75 C steel, 28
Thermal expansion
  of columbium, 73
  of bearing bronzes, 95
  of artificial graphite and carbon, 96
  of mono- and polycrystalline antimony, 135
  of Cu-Be alloys, 167
  of Pb-Sb alloys, 168

Thermal expansion (continued)
of cemented tungsten carbide, 206
of heat-resisting alloys, 235
of electrolytic chromium, 283
of some Cr-V steels, 284
Thermocouples
reference tables for Pt to Pt-Rh-, 78
chromel-alumel -, 149
-testing methods and matls., 150
iron-constantan and copper-constantan -, 243
Thorium
commercial grade, phys. props. of -, 83
Tin
distillation and separation of-, 182
superconducting transition of-, 220
Tool
life, 3
new - for control of quality steel making, 221
pyramidal-diamond - for indentation measurements, 262
Tool steel
hardening 1% C -, 129, 130
thermal expansion of cemented tungsten carbide, 206
Tube
torsion tests of -, 220
strength of round aircraft tubing, 241
strength of soft-soldered joints in copper -, 287
Tungsten
thermal expansion of cemented carbide, 206
Vanadium
term analysis of the first spectrum of -, 177
Volume
changes in metals during casting, method of study, 56
Wear
of steel gages, Cr plated, 10
of metals, 12, 24
Wear (continued)
effect of C and heat treatment on - of steel, 22
of carbon steel, 23
effect of oxide film on - of steels, 111
die for extruding plastic clay, 119
steel and brass, frictional resist. in shrink fits, 120
oxide films as a protection against-, 213
Welding
strength of welded aircraft joints, 195
corrosion tests of welded low-C stainless steel, 203
tee-bend test as method of deter. weldability of steel, 303
Wire
fatigue tests of-, 29
under pulsating stress, 81
standardization of tapes and-, 159
fatigue, steel -, 155
insp. and tens. tests of worn - ropes, 165
failure of heat-treated steel - in cables of Mt. Hope, R. I. suspension bridge, 186
square soldier - for small jobs, 223
X-rays, Radiography
study of Ar_3 and Ac_3 points of iron and iron-nickel alloys, 247
effect of service stresses on impact resistance, X-ray diffraction patterns, etc. of aluminum alloy, 261
Zinc
and its alloys, 48
coating, effect of, on fatigue of steel, 59
coating, on steel, Preece test for, 64, 94
deter. of small amounts of -, in steel, 88
base die-casting alloys, dimensional changes, 99
coatings, thickness of cadmium and -, 137
and cadmium coatings on steel, 162

Aug 02, 2017